

Baseline Assessment of Health Outcomes Measures 1-7:

Prenatal Care/Risk Appropriate Care, SFY 2007
Lead Screening and Elevated Blood Lead Level, CY 2006
Appropriate Medications for People with Asthma, SFY 2007
Ambulatory Care Sensitive Conditions, SFY 2007
Follow-up Care for Newly Prescribed ADHD Medication, SFY 2007
Follow-up after Hospitalization for Mental Illness, SFY 2007
Hospital Readmission Rates, SFY 2007

Corrective Action Order Health Outcomes Measures



2009 Baseline Assessment

Center for Strategic Decision Support
Financial Services Division

TEXAS HEALTH AND HUMAN SERVICES COMMISSION

--October 2009--

Introduction

In April 2008, Plaintiffs and Defendants agreed on seven indicators that measure important aspects of the Early Periodic Screening, Diagnosis, and Treatment (EPSDT) Program population's health. These indicators were,

1) Prenatal Care/Risk Appropriate care	Page 3
2) Lead Screening and Elevated Blood Lead Level	Page 7
3) Appropriate Medications for People with Asthma	Page 18
4) Ambulatory Care Sensitive Conditions	Page 25
5) Follow-up Care for Newly Prescribed ADHD Medication	Page 30
6) Follow-up after Hospitalization for Mental Illness	Page 36
7) Hospital Readmission Rates	Page 41

Data Notes

The study period for most of the indicators was State Fiscal Year (SFY) 2007, the exception being the Lead Screening and Elevated Blood Lead Level measures which were calculated for Calendar Year (CY) 2006. All studies have been stratified by race/ethnicity and by service delivery type/area.

Medicaid Enrollment:

Premiums Payable System (PPS) data, which are collected from the System of Application, Verification, Eligibility, Referral, and Reporting (SAVERR) and the Texas Integrated Eligibility Redesign System (TIERS) databases, provide a summary of all Medicaid-enrolled clients each month. Data compiled for any given month are considered complete after eight months (allowing for all retroactivity to be included) and are referred to in this report as the 8-month enrollment file. These data, which include information on the clients' enrollment dates and service delivery type/area, are the source of all reported demographic characteristics such as age, race/ethnicity, and county/zip of residence.

Health Services Delivery:

General health services by the state are delivered through one of several different service models:

- Fee-for-Service (FFS) – a model in which clients choose a doctor or health care provider at the point in which they need medical attention. The provider receives a fee for each service (such as an office visit, test, procedure, or other health care service) provided to the Medicaid client.
- Primary Care Case Management (PCCM) – a model in which clients choose or are assigned a Primary Care Provider (PCP) who will provide most of the client's health-care services. Under the PCCM model, primary care providers contract with Medicaid to provide a "medical home" for the client and coordinate his or her medical care. Participating primary care providers are paid traditional fee-for-service rates plus an additional case management fee (per patient, per month)

for those who selected them or are defaulted to them as their primary care provider.

- Health Maintenance Organizations (HMOs) – a model in which clients are enrolled into managed care organizations which coordinate the health care services that are received. These organizations receive a monthly capitation payment for each person enrolled based on an average projection of medical expenses for the typical patient. Eligibility to enroll in certain HMO plans is determined by the area in which the client lives, referred to in this report as Service Delivery Areas, or SDA.
- NorthSTAR - NorthSTAR provides behavioral healthcare for residents of Collin, Dallas, Ellis, Hunt, Kaufman, Navarro and Rockwall counties. Enrollees of NorthSTAR can receive clinically necessary mental health and/or substance abuse/chemical dependency services through the program. Eligibility for the program is subject to residential, financial, and clinical eligibility criteria and is not tied to enrollment in other Medicaid programs.

Health care providers that bill for services rendered under the FFS and PCCM models submit claims to The Texas Medicaid & Healthcare Partnership (TMHP), which carries out Medicaid claims adjudication under contract with the Texas Health and Human Services Commission. Health care providers participating in Medicaid HMOs submit claims to the managed care organization in which they are enrolled. The HMO adjudicates the claim and submits a record of the “encounter” to TMHP. Encounters data are not tied to payments, but do provide information on interactions between clients and health care providers such as dates of service, diagnoses, procedures, provider identifications, etc. In the following studies, the phrase administrative claims data refers to a record of a transaction for healthcare services for clients enrolled in the Fee-for-Service Medicaid or the Primary Care Case Management models; HMO encounters data refers to a record of a healthcare service provided to a client enrolled in an HMO program; and NorthSTAR data refers to enrollment and encounter/claims files from the NorthSTAR program which have been linked to children receiving Medicaid.

Small Cell Numbers:

Rates and percentages based on a small number of events are sensitive to random variation and may fluctuate dramatically from year to year, or differ considerably from one area to another area, even when there is no meaningful difference. In this report, numerator and denominator data are given regardless of the number of events; however, rates and percentages based on small numbers (< 30) are not calculated and warnings to interpret the data cautiously are issued in the footnotes.

Abbreviations:

Appendix 1 on page 48 provides full length definitions of acronyms frequently used in this report.

Indicator 1: Prenatal Care/Risk Appropriate Care

Definition: Study 1) Percentage of live births to Texas Health Steps (THSteps) clients for which the mother received prenatal care in the first trimester of pregnancy; Study 2) the percentage of very low birth weight (VLBW) births to THSteps clients that are delivered at hospitals designated as Level III obstetrical centers.

Study Population (Denominators)

In SFY 2007, there were 242,796 newborns identified in the 8-month enrollment file (defined as those clients whose first enrollment month in Medicaid was the month of their birth). The clients' full name, birth date, gender, race and zip code were used to link the enrollment information to data from the Texas Vital Statistics Unit (VSU) Birth Certificate File. The linkage was performed by *The Link-King* software, a public domain SAS-based application for probabilistic record linkage. The process yielded 228,456 (94.1%) record pairs successfully linked between newborn Medicaid clients and their birth certificates.

Eligible population:

The number of Medicaid infants born to mothers age 20 years and under was 63,643. Twenty-seven births were excluded because the newborn's birth location, as listed on the birth certificate, was not in Texas. An additional 109 were excluded because the clients were covered under "emergency" Medicaid (Program Types 30, 31, 34, 35).¹ The remaining 63,507 were eligible for inclusion in the studies examining prenatal care and risk appropriate care.

Study 1: Onset of Prenatal Care

The beginning of the pregnancy was determined from either the date reported as the start of the last normal menstrual period, or by calculating that date using the clinical estimate of gestational age. Prenatal care was then classified as either having occurred in the first, second, or third trimester, or not at all. Records with missing information for the onset of pregnancy or the onset of prenatal care were coded as unknown in the linked data set and were excluded (n=1,894; 2.9% of all records). The onset of prenatal care for the remaining 61,613 births is displayed in Table 1.1.

Records from the linked file in which the mother's Medicaid ID was not listed on the birth certificate have been included in this overall analysis, but are displayed as a separate group. These mothers may not have been enrolled in Medicaid at the time of the delivery or they may have been enrolled in "emergency" Medicaid (Program Types 30, 31, 34, or 35) and, as such, may represent a different intervention group from those who enroll in Medicaid before or during their pregnancy and therefore did have a Medicaid ID. The stratified analyses by race/ethnicity and service delivery type/area include mothers without Medicaid ID.

¹ Enrollment details for the mother, including Program Type, were unavailable for 22% of the live births because the Mother's Medicaid ID number was not listed on the Birth Certificate.

Table 1.1: Onset of Prenatal Care Among Mothers (age 20 years and under) of Medicaid Enrolled Infants – Texas Medicaid, SFY 2007

	Total Number of Births	No Prenatal Care		Occurrence of 1st Prenatal Care Visit					
		n	%	1st trimester		2nd trimester		3rd trimester	
				n	%	n	%	n	%
Medicaid ID status									
Mothers without Medicaid ID*	13,424	1,506	11.2	5,124	38.2	4,892	36.4	1,902	14.2
Mothers with Medicaid ID	48,189	1,717	3.6	22,481	46.7	18,440	38.3	5,551	11.5
Race/Ethnicity									
White, non-Hispanic	13,563	350	2.6	6,703	49.4	5,071	37.4	1,439	10.6
Black, non-Hispanic	8,856	465	5.3	3,527	39.8	3,551	40.1	1,313	14.8
Hispanic	37,706	2,343	6.2	16,739	44.4	14,108	37.4	4,516	12.0
Other/Unknown	1,488	65	4.4	636	42.7	602	40.5	185	12.4
Service Delivery Type/Area									
FFS	16,477	1,993	12.1	6,234	37.8	5,765	35.0	2,485	15.1
PCCM	16,635	453	2.7	8,847	53.2	5,934	35.7	1,401	8.4
Managed Care	28,501	777	2.7	12,524	43.9	11,633	40.8	3,567	12.5
Bexar	4,335	158	3.6	2,571	59.3	1,289	29.7	317	7.3
Dallas	5,323	176	3.3	1,642	30.8	2,533	47.6	972	18.3
El Paso	1,967	30	NR	964	49.0	803	40.8	170	8.6
Harris	8,135	197	2.4	3,394	41.7	3,461	42.5	1,083	13.3
Lubbock	1,258	10	NR	581	46.2	549	43.6	118	9.4
Nueces	1,704	36	2.1	856	50.2	630	37.0	182	10.7
Tarrant	3,980	99	2.5	1,766	44.4	1,606	40.4	509	12.8
Travis	1,799	71	3.9	750	41.7	762	42.4	216	12.0
Total†	61,613	3,223	5.2	27,605	44.8	23,332	37.9	7,453	12.1

* Mothers without a Medicaid ID may not have been enrolled in Medicaid at the time of the delivery or may be “emergency” Medicaid and thus represent a different intervention group from those who enroll in Medicaid before or during their pregnancy.

† Does not include 1,894 records with missing information on number of prenatal care visits and onset time of prenatal care or gestational age.

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Study 2: Risk Appropriate Care

Very Low Birth Weight (VLBW) deliveries were identified from the linked dataset as infants who weighed less than 1,500 grams at birth. All VLBW deliveries that occurred in Texas were selected for Study 2, except for instances where the mother was enrolled in “emergency” Medicaid (Program Types 30, 31, 34, or 35). There were 3,954 VLBW births, 1,020 of which were to mothers age 20 years and under.

Table 1.2: Frequency of VLBW Births among Medicaid Enrolled Infants – Texas Medicaid, SFY 2007

Plurality	Mothers age 20 years and under	Mothers over age 20	Total
Singleton	856	2,271	3,127
Twin or higher order multiple	164	663	827
Total	1,020	2,934	3,954

Data from the 2007 American Hospital Association/Texas Department of State Health Services/Texas Hospital Association (AHA/DSHS/THA) *Cooperative Annual Survey of Hospitals* were used to classify the obstetric units of the birth hospitals listed in the VSU Birth Certificate file. The survey, which is required by state law² is the state’s only comprehensive source of information on topics such as number of beds and utilization, revenue, Medicare/Medicaid utilization and hospital services offered. A Level III obstetrics unit, as defined by the survey, is a “unit that provides services for all serious illnesses and abnormalities and is supervised by a full-time maternal/fetal specialist.”

Among the 3,954 VLBW births, sixteen infants were born at home or en route to the hospital and five were born at military hospitals. The level of the obstetrics unit and the type of neonatal unit was coded as “Not Applicable” for these records. The remaining records were linked to the AHA/DSHS/THA survey in SAS, using the name of the facility as the linking variable. Birth records listing a hospital or facility that could not be successfully matched to the AHA/DSHS/THA survey, or matched to hospitals that did not report having provided obstetrics and/or neonatal services in the questionnaire were coded as “Unknown/Did not report.”

² State laws (Health and Safety Code, Chapters 104 and 311) require the Department of State Health Services to collect aggregate financial, utilization, and other data from all licensed hospitals.

Table 1.3: Level of Obstetrics Unit in which VLBW infants were born - Texas Medicaid, SFY 2007

	I		II		III		NA [†]		Unknown/ Did not report		Total
	n	%	n	%	n	%	n	%	n	%	
Onset of Prenatal Care (PNC)											
1st trimester	165	8.1	840	41.2	1,009	49.5	7	NR	18	NR	2,039
2nd trimester	117	11.3	382	36.7	519	49.9	5	NR	17	NR	1,040
3rd trimester	12	NR	40	32.0	66	52.8	1	NR	6	NR	125
No PNC	56	12.3	197	43.3	191	42.0	3	NR	8	NR	455
Missing information on PNC	48	16.3	80	27.1	156	52.9	5	NR	6	NR	295
Race/Ethnicity											
White, non-Hispanic	66	7.9	282	33.6	472	56.2	7	NR	13	NR	840
Black, non-Hispanic	78	8.0	359	36.8	512	52.5	6	NR	20	NR	975
Hispanic	243	12.5	823	42.5	845	43.6	7	NR	20	NR	1,938
Other/Unknown	11	NR	75	37.3	112	55.7	1	NR	2	NR	201
Service Delivery Type/Area											
FFS	224	12.3	597	32.7	959	52.6	15	NR	29	NR	1,824
PCCM	60	8.5	298	42.3	335	47.6	0	NR	11	NR	704
Managed Care	114	8.0	644	45.2	647	45.4	6	NR	15	NR	1,426
Bexar	6	NR	148	69.8	58	27.4	0	NR	0	NR	212
Dallas	12	NR	45	16.4	209	76.0	1	NR	8	NR	275
El Paso	0	NR	64	80.0	16	NR	0	NR	0	NR	80
Harris	80	16.8	205	43.2	180	37.9	4	NR	6	NR	475
Lubbock	2	NR	0	NR	61	96.8	0	NR	0	NR	63
Nueces	3	NR	66	94.3	1	NR	0	NR	0	NR	70
Tarrant	6	NR	74	43.8	88	52.1	0	NR	1	NR	169
Travis	5	NR	42	51.2	34	41.5	1	NR	0	NR	82
Total	398	10.1	1,539	38.9	1,941	49.1	21	NR	55	1.4	3,954

[†] NA = Not Applicable. Infant born in non-participating hospital (military), at home, or en route to the hospital, etc.

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Indicator 2: Lead Screening and Elevated Blood Lead Level

Definition: Percentage of children who were; Study 1) screened for elevated blood lead; Study 2) reported to have an elevated blood lead level (EBLL); and Study 3) received appropriate follow-up testing for an EBLL.

Study Population (Denominators)

Two cohorts based on year of birth were identified for this study by using the 8-month enrollment files for SFY 2006 through SFY 2007. In CY 2006, 238,888 children were enrolled in Medicaid who turned one year old during the calendar year (born between 1/1/05 and 12/31/05). Among them, 91% (n=218,392) were enrolled during the month of their first birthday. There were 210,114 children in Medicaid who turned two years old during the study period (born between 1/1/04 and 12/31/04). Among them, 79% (n=165,640) were enrolled during the month of their second birthday. Seventy percent (n=116,155) of the children who were enrolled on their second birthday were enrolled continuously for the twelve previous months (with no enrollment gap larger than one month).

If clients moved between service delivery types/areas and/or zip codes, they were assigned to the area in which they lived the longest in 2006, or if they lived in different areas for equal lengths of time, the area they lived most recently. "At-risk" zip codes were assigned using the Texas Childhood Lead Poisoning Prevention Program (CLPPP) designation of targeted areas, which is based on the prevalence of EBLL and the percentage of pre-1950 housing.³

³ Texas Department of State Health Services, Epidemiology & Disease Surveillance Unit, Texas Childhood Lead Poisoning Prevention Program. "Blood Lead Screening and Testing Guidelines for Texas Children: Quick Reference Guide," Oct. 20, 2008. (Page 2).

Table 2.1: Clients turning one or two years old and meeting eligibility requirements for the study population - Texas Medicaid, CY 2006

	Denominator 1 [*]	Denominator 2 [†]	Denominator 3 [‡]
Race/Ethnicity			
White, non-Hispanic	47,826	29,725	18,588
Black, non-Hispanic	30,541	24,734	16,126
Hispanic	133,614	107,121	78,462
Other/Unknown	6,411	4,060	2,979
Service Delivery Type/Area			
FFS	29,203	23,517	12,453
PCCM	61,685	46,895	35,209
Managed Care	127,504	95,228	68,493
Bexar	15,256	12,006	8,581
Dallas	26,036	19,299	13,419
El Paso	8,230	6,709	5,263
Harris	41,661	31,469	23,080
Lubbock	3,191	2,305	1,685
Nueces	7,961	6,008	4,561
Tarrant	15,764	10,895	7,457
Travis	9,405	6,537	4,447
Living in an "At-risk" zip code[§]			
Yes	108,753	83,926	59,533
No	109,639	81,714	56,622
Total	218,392	165,640	116,155

^{*} Denominator 1= Number of 1 year olds enrolled in Medicaid on their 1st birthday during 2006

[†] Denominator 2= Number of 2 year olds enrolled in Medicaid on their 2nd birthday during 2006.

[‡] Denominator 3= Number of 2 year olds from denominator 2 who had 12 months continuous enrollment prior to their 2nd birthday. (HEDIS)

[§] At-risk" zip codes were designated by CLPPP based on the prevalence of EBLI and the percentage of pre-1950 housing.

Blood lead testing data

Blood lead testing data are collected by CLPPP. For 2004 through 2006, the CLPPP database contained 1,107,604 records corresponding to blood lead test results from 855,119 distinct children. Only children turning 1 or 2 years of age during 2006 were included in this study (109,500 one year olds; 145,033 two year olds).

Medicaid identification numbers recorded in the CLPPP database, when available, were used to directly link Medicaid enrollment information to the lead testing data. Of the 254,533 one and two year olds in the CLPPP data, 192,187 (76%) had a Medicaid ID number recorded, however only 169,146 (66%) directly linked to clients listed in the 8-month enrollment file. The remaining records – those without a *valid* Medicaid ID number and those without any Medicaid ID number – were indirectly matched to the Medicaid enrollment file using *The Link King*, a public domain SAS-based application for probabilistic record linkage. Using the child's name, date of

birth, race/ethnicity, gender and county, an additional 26,103 record pairs were identified. The total number of THSteps clients identified in the CLPPP data through direct and indirect record linkage was 195,249.

Following the record linkage process, the enrollment status of each individual who had one or more recorded blood lead tests, was determined. Any individual who was excluded from the denominator was also excluded from the numerator.

Study 1: Lead screening

Three measures for Study 1 related to the proportion of children who had at least one blood lead screening before their birthday. A screening test was defined as a record of a blood lead test (a valid test result recorded in the CLPPP data, or a claim with CPT code 83655 in the Texas Medicaid Claims database) for a child turning age one or age two years old, who had no previous record of blood lead test results. The one year old and two year old cohorts were analyzed separately and results from tests performed after the child's 1st and 2nd birthdays respectively were not included. A child screened multiple times within the look-back period counted only once (Tables 2.2 – 2.4).

A fourth outcome measure for Study 1 was to determine the proportion of two year old children who had two screenings before their second birthday. In this measure, clients were only counted if they were screened on at least two occasions with dates of service greater than 90 days apart and both tests occurred on or before their second birthday (Table 2.5).

Table 2.2: Number of one year olds enrolled in Medicaid on their 1st birthday who had at least one screening for blood lead levels on or before their 1st birthday – Texas Medicaid, CY 2006

	Population	n	%
Race/Ethnicity			
White, non-Hispanic	47,826	7,469	15.6
Black, non-Hispanic	30,541	5,213	17.1
Hispanic	133,614	27,225	20.4
Other/Unknown	6,411	974	15.2
Service Delivery Type/Area			
FFS	29,203	4,727	16.2
PCCM	61,685	10,942	17.7
Managed Care	127,504	25,212	19.8
Bexar	15,256	2,454	16.1
Dallas	26,036	6,752	25.9
El Paso	8,230	2,189	26.6
Harris	41,661	7,855	18.9
Lubbock	3,191	429	13.4
Nueces	7,961	1,005	12.6
Tarrant	15,764	3,014	19.1
Travis	9,405	1,514	16.1
Living in an “At-risk” zip code[§]			
Yes	108,753	21,169	19.5
No	109,639	19,712	18.0
Total	218,392	40,881	18.7

[§] At-risk” zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

Table 2.3: Number of two year olds enrolled in Medicaid on their 2nd birthday who had at least one screening for blood lead levels on or before their 2nd birthday – Texas Medicaid, CY 2006

	Population	n	%
Race/Ethnicity			
White, non-Hispanic	29,725	11,253	37.9
Black, non-Hispanic	24,734	10,084	40.8
Hispanic	107,121	56,087	52.4
Other/Unknown	4,060	1,742	42.9
Service Delivery Type/Area			
FFS	23,517	9,466	40.3
PCCM	46,895	23,808	50.8
Managed Care	95,228	45,892	48.2
Bexar	12,006	5,288	44.0
Dallas	19,299	10,622	55.0
El Paso	6,709	3,848	57.4
Harris	31,469	14,679	46.6
Lubbock	2,305	808	35.1
Nueces	6,008	2,293	38.2
Tarrant	10,895	5,011	46.0
Travis	6,537	3,343	51.1
Living in an “At-risk” zip code[§]			
Yes	83,926	41,165	49.0
No	81,714	38,001	46.5
Total	165,640	79,166	47.8

[§] At-risk” zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

Table 2.4: Number of two year olds with 12 month continuous enrollment prior to their 2nd birthday who had at least one screening for blood lead levels – Texas Medicaid, CY 2006

	Population	n	%
Race/Ethnicity			
White, non-Hispanic	18,588	7,747	41.7
Black, non-Hispanic	16,126	7,384	45.8
Hispanic	78,462	43,714	55.7
Other/Unknown	2,979	1,369	46.0
Service Delivery Type/Area			
FFS	12,453	5,763	46.3
PCCM	35,209	19,156	54.4
Managed Care	68,493	35,295	51.5
Bexar	8,581	4,016	46.8
Dallas	13,419	7,926	59.1
El Paso	5,263	3,165	60.1
Harris	23,080	11,542	50.0
Lubbock	1,685	609	36.1
Nueces	4,561	1,839	40.3
Tarrant	7,457	3,728	50.0
Travis	4,447	2,470	55.5
Living in an “At-risk” zip code[§]			
Yes	59,533	31,461	52.8
No	56,622	28,753	50.8
Total	116,155	60,214	51.8

[§] At-risk” zip codes were designated by CLPPP based on the prevalence of EBLI and the percentage of pre-1950 housing.

Table 2.5: Number of two year olds with 12 month continuous enrollment prior to their 2nd birthday who had at least two screenings for blood lead levels on or before their 2nd birthday – Texas Medicaid, CY 2006

	Population	n	%
Race/Ethnicity			
White, non-Hispanic	18,588	1,366	7.3
Black, non-Hispanic	16,126	1,547	9.6
Hispanic	78,462	10,723	13.7
Other/Unknown	2,979	256	8.6
Service Delivery Type/Area			
FFS	12,453	1,161	9.3
PCCM	35,209	4,230	12.0
Managed Care	68,493	8,501	12.4
Bexar	8,581	848	9.9
Dallas	13,419	2,824	21.0
El Paso	5,263	845	16.1
Harris	23,080	2,390	10.4
Lubbock	1,685	80	4.7
Nueces	4,561	326	7.1
Tarrant	7,457	659	8.8
Travis	4,447	529	11.9
Living in an “At-risk” zip code^s			
Yes	59,533	7,777	13.1
No	56,622	6,115	10.8
Total	116,155	13,892	12.0

^s At-risk” zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

Study 2: Prevalence of elevated blood lead level (EBLL)

Confirmed EBLL was defined as a child with one venous blood specimen ≥ 10 $\mu\text{g/dL}$ or two capillary blood specimens ≥ 10 $\mu\text{g/dL}$ drawn within 12 weeks of each other. Because of the low number of confirmed cases of EBLL, all confirmed blood tests were included in the denominator, even if they were not in the numerators of Study 1 because they occurred after the child’s birthday.

The prevalence of blood lead levels ≥ 2 $\mu\text{g/dL}$ was also calculated, and overlaps the EBLL category. Confirmatory tests for blood lead level results < 10 $\mu\text{g/dL}$ are not recommended or required. Estimates based on unconfirmed test results should be interpreted with caution, as the capillary test is known to produce false positive results, especially at lower values.⁴

⁴ Sargent JD, Dalton MA. Rethinking the threshold for an abnormal capillary blood lead screening test. *Arch Pediatr Adolesc Med.* 1996;150 :1084 –1088.

Table 2.6: Prevalence of elevated blood lead levels among one year old clients who had at least one screening for blood lead levels - Texas Medicaid, CY 2006

	Population	Confirmed cases of lead level $\geq 10 \mu\text{g/dL}$		Unconfirmed cases of lead level $\geq 2 \mu\text{g/dL}$	
		n	%	n	%
Race/Ethnicity					
White, non-Hispanic	14,055	56	0.4	9,289	66.1
Black, non-Hispanic	9,885	36	0.4	6,621	67.0
Hispanic	57,521	237	0.4	38,181	66.4
Other/Unknown	2,146	9	NR	1,256	58.5
Service Delivery Type/Area					
FFS	9,515	33	0.3	6,119	64.3
PCCM	25,586	128	0.5	17,176	67.1
Managed Care	48,506	177	0.4	32,052	66.1
Bexar	5,075	23	NR	3,162	62.3
Dallas	11,905	37	0.3	7,872	66.1
El Paso	4,008	19	NR	2,577	64.3
Harris	14,922	56	0.4	9,926	66.5
Lubbock	898	3	NR	547	60.9
Nueces	2,449	8	NR	1,713	69.9
Tarrant	5,398	21	NR	3,999	74.1
Travis	3,851	10	NR	2,256	58.6
Living in an “At-risk” zip code[§]					
Yes	42,955	213	0.5	29,578	68.9
No	40,652	125	0.3	25,769	63.4
Total	83,607	338	0.4	55,347	66.2

^s At-risk" zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 2.7: Prevalence of elevated blood lead levels among two year old clients who had at least one screening for blood lead levels - Texas Medicaid, CY 2006

	Population	Confirmed cases of lead level $\geq 10 \mu\text{g/dL}$		Unconfirmed cases of lead level $\geq 2 \mu\text{g/dL}$	
		n	%	n	%
Race/Ethnicity					
White, non-Hispanic	12,127	75	0.6	9,319	76.8
Black, non-Hispanic	11,023	74	0.7	8,965	81.3
Hispanic	62,214	440	0.7	48,364	77.7
Other/Unknown	1,834	5	NR	1,313	71.6
Service Delivery Type/Area					
FFS	10,351	67	0.6	7,806	75.4
PCCM	27,048	224	0.8	21,724	80.3
Managed Care	49,799	303	0.6	38,431	77.2
Bexar	5,872	31	0.5	4,491	76.5
Dallas	11,470	63	0.5	9,008	78.5
El Paso	4,346	34	0.8	3,228	74.3
Harris	15,513	104	0.7	11,933	76.9
Lubbock	912	9	NR	691	75.8
Nueces	2,538	16	NR	2,001	78.8
Tarrant	5,385	36	0.7	4,418	82.0
Travis	3,763	10	NR	2,661	70.7
Living in an “At-risk” zip code[§]					
Yes	45,327	405	0.9	36,258	80.0
No	41,871	189	0.5	31,703	75.7
Total	87,198	594	0.7	67,961	77.9

^s At-risk" zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Study 3: Follow-up for EBLL

The timing of follow-up blood lead tests for children with EBLL is recommended according to the initial blood lead level. The maximum time is within 3 months. Of the 932 children in Study 2 identified with confirmed EBLL, 804 remained enrolled in Medicaid for 3 months following their confirmed EBLL result. Of these, 705 received a follow-up test, however only 543 (77.0%) of them received their follow-up test within 95 days.

Table 2.8: Number and percent of screened one year olds with confirmed elevated blood lead levels who received a follow-up test - Texas Medicaid, CY 2006

	Number of children with confirmed EBLL who remained in Medicaid for at least 95 days following initial EBLL test	Number and Percent of eligible children who received a follow-up test within 95 days	
		n	%
Race/Ethnicity			
White, non-Hispanic	42	32	76.2
Black, non-Hispanic	29	25	NR
Hispanic	185	126	68.1
Other/Unknown	7	5	NR
Service Delivery Type/Area			
FFS	28	20	NR
PCCM	97	65	67.0
Managed Care	138	103	74.6
Bexar	13	11	NR
Dallas	31	24	NR
El Paso	14	10	NR
Harris	45	33	73.3
Lubbock	2	2	NR
Nueces	7	5	NR
Tarrant	18	16	NR
Travis	8	2	NR
Living in an “At-risk” zip code[§]			
Yes	164	119	72.6
No	99	69	69.7
Total	263	188	71.5

[§] At-risk" zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 2.9: Number and percent of screened two year olds with confirmed elevated blood lead levels who received a follow-up test - Texas Medicaid, CY 2006

	Number of children with confirmed EBLL who remained in Medicaid for at least 95 days following initial EBLL test	Number and Percent of eligible children who received a follow-up test within 95 days	
		n	%
Race/Ethnicity			
White, non-Hispanic	66	43	65.2
Black, non-Hispanic	62	43	69.4
Hispanic	408	267	65.4
Other/Unknown	5	2	NR
Service Delivery Type/Area			
FFS	59	38	64.4
PCCM	203	135	66.5
Managed Care	279	182	65.2
Bexar	29	16	NR
Dallas	59	39	66.1
El Paso	30	19	NR
Harris	93	64	68.8
Lubbock	9	4	NR
Nueces	16	10	NR
Tarrant	33	22	NR
Travis	10	8	NR
Living in an “At-risk” zip code[§]			
Yes	371	241	65.0
No	170	114	67.1
Total	541	355	65.6

^s At-risk" zip codes were designated by CLPPP based on the prevalence of EBLL and the percentage of pre-1950 housing.

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Indicator 3: Appropriate Medications for People with Asthma

Definition: Percent of clients with persistent asthma who are prescribed medications considered acceptable as primary therapy for long-term control of asthma, as defined by Health Effectiveness Data Information Set (HEDIS) specifications, and the percent of clients with persistent asthma whose filled prescriptions have a favorable controller-to-total asthma medication ratio.

Study Population (Denominators)

The study population was identified using the 8-month enrollment file to calculate the sum of months enrolled in SFY 2007 for Texas Medicaid clients, ages 3 through 20 years (based on their age on December 31 of the measurement year). Continuous enrollment during the measurement year was required for inclusion into the study population; however, multiple analyses were conducted using two definitions of continuous enrollment. Denominator 1 included clients who were enrolled for at least 6 continuous months during the measurement year. Denominator 2 included only clients who were enrolled for an entire year (with one allowable gap of no more than one month).

Table 3.1a and 3.1b present the number and months enrolled of clients who were enrolled in each service delivery type/area, age group and race/ethnicity group for both definitions of the denominator. Clients who were continuously enrolled in Medicaid, but who did not spend at least 6 continuous months in any one SDA or system of care (i.e. moved between Fee-for-Service, PCCM or individual SDAs) were analyzed as a separate stratum, called “movers” as they represent a separate intervention group in which the maintenance of asthma treatment and medication over time may be influenced more by the continuity of care than by the performance of the service provider.⁵

⁵ Carrasquillo O, et. al. “Can Medicaid managed care provide continuity of care to new Medicaid enrollees? An analysis of tenure on Medicaid.” *American Journal of Public Health* 1998; 88(3): 454-456.

Table 3.1a: Number of clients and sum of months enrolled in Medicaid, for children meeting the 6 month enrollment criteria – Texas Medicaid, SFY 2007

	N Clients	Months Enrolled
Age Group		
3 or 4	299,449	3,190,757
5 to 10	557,779	5,887,415
10 to 17	616,368	6,500,765
17 to 20	89,205	818,512
Race/Ethnicity		
White, non-Hispanic	284,924	2,919,094
Black, non-Hispanic	302,965	3,183,171
Hispanic	926,787	9,766,660
Other/Unknown	48,125	528,524
Service Delivery Type/Area		
FFS	140,033	1,509,757
PCCM	480,185	5,085,257
Managed Care	942,583	9,802,435
Bexar	124,210	1,296,677
Dallas	169,777	1,738,610
El Paso	76,901	822,526
Harris	294,718	3,068,274
Lubbock	23,470	243,088
Nueces	73,440	774,186
Tarrant	97,107	986,130
Travis	59,455	618,365
“Movers” §	23,505	254,579
TOTAL	1,562,801	16,397,449

Table 3.1b: Number of clients and sum of months enrolled in Medicaid, for children meeting the 12 month enrollment criteria – Texas Medicaid, SFY 2007

	N Clients	Months Enrolled
Age Group		
3 or 4	201,023	2,398,578
5 to 10	364,593	4,348,199
10 to 17	405,378	4,835,779
17 to 20	31,867	377,239
Race/Ethnicity		
White, non-Hispanic	169,451	2,018,690
Black, non-Hispanic	193,620	2,308,821
Hispanic	603,379	7,197,129
Other/Unknown	36,411	435,155
Service Delivery Type/Area		
FFS	120,328	1,435,714
PCCM	320,635	3,824,907
Managed Care	561,898	6,699,174
Bexar	73,042	870,761
Dallas	100,379	1,196,067
El Paso	52,656	628,691
Harris	178,339	2,127,051
Lubbock	14,245	169,942
Nueces	47,917	571,442
Tarrant	55,986	666,844
Travis	35,141	418,972
“Movers”§	4,193	49,404
TOTAL	1,002,861	11,959,795

§ “Movers” were continuously enrolled for the required number of months but did not spend at least six months in any one service delivery type or area.

Definition for Asthma:

Administrative claims and HMO encounters data were used to identify the asthma population. The asthma population was defined using criteria developed by the National Committee for Quality Assurance (NCQA) to identify persons with persistent asthma and evaluate whether they are being prescribed medications that are considered acceptable as primary therapy for long-term control of asthma.⁶ These criteria require evidence in the administrative claims or HMO encounters data systems of any one of the four following events having occurred during the study period:

1. One or more inpatient hospital visits with a principle diagnosis of asthma.
2. One or more emergency department visits with a principle diagnosis of asthma.
3. Four or more outpatient visits with any diagnosis of asthma and two or more asthma medication dispensing events.
4. Four or more asthma medication dispensing events.

Asthma medication data were retrieved from the Texas Vendor Drug Database. Medications used in the treatment of asthma were identified using a comprehensive list from NCQA.⁷ A dispensing event was defined as a filled prescription for an asthma medication lasting 30 days or less. Prescriptions for medications lasting longer than 30 days were divided by 30 and rounded down to convert to dispensing events (for example, a 100-day prescription is equal to 3 dispensing events: $100/30 = 3.33$, rounded down to 3).

Using the definition above, a total of 101,809 clients meeting the 6-month enrollment criteria and 99,692 clients meeting the 12-month enrollment criteria were classified as having persistent asthma. The prevalence of asthma in the 6-month and 12-month enrollment groups was 6.5% and 9.9%, respectively. Table 3.2 displays the asthma prevalence according to the demographic categories of age, race/ethnicity and SDA.

⁶ National Committee for Quality Assurance. "Use of appropriate medications for people with asthma." *HEDIS 2008 Technical Specifications for Physician Measurement*. 2007: pp 188-191.

⁷ "Appropriate Medications for People with Asthma (ASM) – Denominator.xls" obtained from: <http://www.ncqa.org/tabid/598/Default.aspx>. Accessed January 2009.

Table 3.2: Number and percent of clients ages 3 through 20 classified as having persistent asthma[†] among clients satisfying the 6 month and 12 month enrollment criteria – Texas Medicaid, SFY 2007

	<u>6-Month Enrollment</u>			<u>12-Month Enrollment</u>		
	Number of clients	Clients with asthma	Percent	Number of clients	Clients with asthma	Percent
Age Group						
3 or 4	299,449	23,557	7.9	201,023	22,922	11.4
5 to 10	557,779	43,259	7.8	364,593	42,640	11.7
10 to 17	616,368	32,534	5.3	405,378	31,900	7.9
17 to 20	89,205	2,459	2.8	31,867	2,230	7.0
Race/Ethnicity						
White, non-Hispanic	284,924	19,379	6.8	169,451	19,349	11.4
Black, non-Hispanic	302,965	21,730	7.2	193,620	20,730	10.7
Hispanic	926,787	56,254	6.1	603,379	55,171	9.1
Other/Unknown	48,125	4,446	9.2	36,411	4,442	12.2
Service Delivery Type/Area						
FFS	140,033	11,044	7.9	120,328	10,906	9.1
PCCM	480,185	32,629	6.8	320,635	32,335	10.1
Managed Care	942,583	58,136	6.2	561,898	56,451	10.0
Bexar	124,210	9,543	7.7	73,042	9,216	12.6
Dallas	169,777	10,992	6.5	100,379	10,613	10.6
El Paso	76,901	4,647	6.0	52,656	4,660	8.8
Harris	294,718	15,249	5.2	178,339	14,862	8.3
Lubbock	23,470	1,728	7.4	14,245	1,684	11.8
Nueces	73,440	5,911	8.0	47,917	5,793	12.1
Tarrant	97,107	5,544	5.7	55,986	5,302	9.5
Travis	59,455	2,946	5.0	35,141	2,799	8.0
“Movers” [§]	23,505	1,576	6.7	4,193	1,522	36.3
TOTAL	1,562,801	101,809	6.5	1,002,861	99,692	9.9

[†] The persistent asthma population was defined using criteria developed by NCQA (National Committee for Quality Assurance. “Use of appropriate medications for people with asthma.” *HEDIS 2008 Technical Specifications for Physician Measurement*. 2007: pp 188-191.)

[§] “Movers” were continuously enrolled for the required number of months but did not spend at least six months in any one service delivery type or area.

Appropriate Medications: For each client with asthma, the total enrolled months were summed for those who had at least one dispensing event during the measurement year of a medication that is considered acceptable for long-term control of asthma. These include inhaled corticosteroids, nedocromil, cromolyn sodium and leukotriene modifiers. These classes are included in the numerator because they are considered primary therapy for the long-term control of asthma.

Asthma Medication Ratio: For each client with asthma, the total enrolled months were summed for those who had a medication ratio⁸ greater than 0.5. The medication ratio is defined as the number of controller medications (as described in the “Appropriate Medications” outcome measure) dispensed during the year divided by the sum of the number of controller medications dispensed plus the number of inhaled short-acting β -agonists (SAB) dispensed during the year.

$$\frac{\text{\# Controller Medications}}{(\text{\# Controller Medications} + \text{\# Inhaled Short-acting } \beta\text{-agonists})}$$

⁸ Schatz, M, Zeiger, RS, Vollmer, WM, et al. “The controller to total asthma medication ratio is associated with patient-centered as well as utilization outcomes.” *Chest* 2006;130,43-50.

Table 3.3: Total months enrolled for clients ages 3 through 20 classified as having persistent asthma[†] who received appropriate medications for long-term control of asthma – Texas Medicaid, SFY 2007

	<u>6-Month Enrollment</u>			<u>12-Month Enrollment</u>		
	Months enrolled for clients with asthma	Months enrolled for clients with appropriate medication use	Percent	Months enrolled for clients with asthma	Months enrolled for clients with appropriate medication use	Percent
Age Group						
3 or 4	266,207	235,926	88.6	261,026	204,089	78.2
5 to 10	483,238	437,403	90.5	478,321	367,982	76.9
10 to 17	364,928	319,959	87.7	359,786	272,940	75.9
17 to 20	25,652	18,955	73.9	23,815	13,797	57.9
Race/Ethnicity						
White, non-Hispanic	214,001	190,395	89.0	213,958	156,404	73.1
Black, non-Hispanic	242,760	204,104	84.1	234,451	172,025	73.4
Hispanic	631,909	572,167	90.5	623,226	489,019	78.5
Other/Unknown	51,355	45,577	88.7	51,313	41,360	80.6
Service Delivery Type/Area						
FFS	127,298	111,274	87.4	126,360	97,394	77.1
PCCM	366,883	332,724	90.7	364,482	285,881	78.4
Managed Care	645,844	568,245	88.0	632,106	475,533	75.2
Bexar	106,126	94,324	88.9	103,469	78,667	76.0
Dallas	121,197	104,067	85.9	118,106	85,831	72.7
El Paso	52,701	49,411	93.8	52,845	43,213	81.8
Harris	169,906	148,781	87.6	166,814	125,367	75.2
Lubbock	19,086	16,210	84.9	18,733	13,225	70.6
Nueces	66,218	61,340	92.6	65,218	51,768	79.4
Tarrant	60,224	50,862	84.5	58,285	40,809	70.0
Travis	32,552	27,527	84.6	31,332	22,903	73.1
“Movers” [§]	17,834	15,723	88.2	17,304	13,750	79.5
TOTAL	1,140,025	1,012,243	88.8	1,122,948	858,808	76.5

[†] The persistent asthma population was defined using criteria developed by NCQA (National Committee for Quality Assurance). “Use of appropriate medications for people with asthma.” *HEDIS 2008 Technical Specifications for Physician Measurement*. 2007: pp 188-191.)

[§] “Movers” were continuously enrolled for the required number of months but did not spend at least six months in any one service delivery type or area.

Table 3.4: Total months enrolled for clients ages 3 through 20 classified as having persistent asthma[†] who had an asthma medication ratio^{††} of 0.5 or greater – Texas Medicaid, SFY 2007

	<u>6-Month Enrollment</u>			<u>12-Month Enrollment</u>		
	Months enrolled for clients with asthma	Months enrolled for clients with medication ratio ≥ 0.5	Percent	Months enrolled for clients with asthma	Months enrolled for clients with medication ratio ≥ 0.5	Percent
Age Group						
3 or 4	266,207	187,315	70.4	261,026	161,705	61.9
5 to 10	483,238	349,018	72.2	478,321	293,867	61.4
10 to 17	364,928	239,050	65.5	359,786	203,507	56.6
17 to 20	25,652	13,100	51.1	23,815	9,572	40.2
Race/Ethnicity						
White, non-Hispanic	214,001	154,888	72.4	213,958	127,661	59.7
Black, non-Hispanic	242,760	149,972	61.8	234,451	126,430	53.9
Hispanic	631,909	447,417	70.8	623,226	381,676	61.2
Other/Unknown	51,355	36,206	70.5	51,313	32,884	64.1
Service Delivery Type/Area						
FFS	127,298	87,247	68.5	126,360	76,602	60.6
PCCM	366,883	262,251	71.5	364,482	225,449	61.9
Managed Care	645,844	438,985	68.0	632,106	366,600	58.0
Bexar	106,126	73,252	69.0	103,469	60,872	58.8
Dallas	121,197	76,009	62.7	118,106	62,394	52.8
El Paso	52,701	40,362	76.6	52,845	35,313	66.8
Harris	169,906	114,080	67.1	166,814	95,883	57.5
Lubbock	19,086	11,533	60.4	18,733	9,420	50.3
Nueces	66,218	51,237	77.4	65,218	43,095	66.1
Tarrant	60,224	39,032	64.8	58,285	31,409	53.9
Travis	32,552	21,130	64.9	31,332	17,473	55.8
“Movers” [§]	17,834	12,350	69.2	17,304	10,741	62.1
TOTAL	1,140,025	788,483	69.2	1,122,948	668,651	59.5

[†] The persistent asthma population was defined using criteria developed by NCQA (National Committee for Quality Assurance. “Use of appropriate medications for people with asthma.” *HEDIS 2008 Technical Specifications for Physician Measurement*. 2007: pp 188-191.)

^{††} Asthma Medication Ratio = (the number of controller medications / (the number of controller medications + inhaled SAB)) dispensed during the year

[§] “Movers” were continuously enrolled for the required number of months but did not spend at least six months in any one service delivery type or area.

Indicator 4: Ambulatory Care Sensitive Conditions

Definition: Rate of hospital and emergency department (ED) visits for Ambulatory Care Sensitive Conditions (ACSC) per 1,000 THSteps member years.

Study Population (Denominators)

Eligible population: The study population was taken from the 8-month enrollment file for all Texas Medicaid clients age 20 years and younger during SFY 2007 (based on their age on December 31 of the measurement year). The denominator was calculated as the sum of their months enrolled during the year. Tables 4.1a and 4.1b present the distinct number of clients and total months enrolled, respectively, for clients who were enrolled in each age group, race/ethnicity group, and service delivery type/area (SDA). For the distinct counts (Table 4.1a), clients were assigned to the SDA category in which they lived most recently and the age group based on their age on December 31, 2006. For total enrollment months (Table 4.1b) it is possible for clients to contribute enrollment months to more than one category if they, for instance, moved between SDAs or aged into a higher age category during the study period.

**Table 4.1a: Distinct number of clients enrolled, age 20 years and under
– Texas Medicaid, SFY 2007**

Category	Number of Clients
Age Group	
0 – 4	1,226,657
5 – 9	707,347
10 – 14	525,571
15 – 20	449,818
Race/Ethnicity	
White, non-Hispanic	567,949
Black, non-Hispanic	517,853
Hispanic	1,738,392
Other/Unknown	85,199
Service Delivery Type/Area	
FFS	571,850
PCCM	784,920
Managed Care	1,552,623
Bexar	196,249
Dallas	300,896
El Paso	118,077
Harris	501,342
Lubbock	38,593
Nueces	119,978
Tarrant	178,136
Travis	99,352
Total	2,909,393

Table 4.1b: Sum of months enrolled for clients age 20 years and under – Texas Medicaid, SFY 2007

Category	Sum of Months Enrolled	Annualized Enrollment
Age Group		
0 – 4	10,448,329	870,694
5 – 9	6,634,760	552,897
10 – 14	4,859,987	404,999
15 – 20	3,682,290	306,858
Race/Ethnicity		
White, non-Hispanic	4,730,556	394,213
Black, non-Hispanic	4,623,054	385,255
Hispanic	15,503,827	1,291,986
Other/Unknown	767,929	63,994
Service Delivery Type/Area		
FFS	5,862,599	488,550
PCCM	6,901,077	575,090
Managed Care	12,861,690	1,071,807
Bexar	1,681,318	140,110
Dallas	2,425,698	202,142
El Paso	1,036,174	86,348
Harris	4,133,325	344,444
Lubbock	323,458	26,955
Nueces	1,030,967	85,914
Tarrant	1,405,498	117,125
Travis	825,252	68,771
Total	25,625,366	2,135,447

Utilization rates, expressed as “Per Thousand Members Per Year” (PTMPY), were calculated by dividing the months of enrollment by 12 to obtain an annualized enrollment count. PTMPY is equal to the number of events divided by the annualized enrollment multiplied by 1,000.

Definition for Ambulatory Care Sensitive Conditions:

Administrative claims and HMO encounters data were used to identify hospital and emergency department visits in which the primary diagnosis was considered to be an ACSC, a designation generated from the consensus that these conditions can usually be managed in the outpatient setting (Appendix 2).

A total of 351,296 visits to an ED and 36,610 hospital admissions for ACSC occurred in SFY 2007.

Table 4.2a: Number and rate of hospitalizations and emergency department visits having a primary diagnosis for ambulatory care sensitive conditions for clients age 20 years and under – Texas Medicaid, SFY 2007

Category	Annualized Enrollment	Emergency Dept. Visits		Inpatient Hospital Stays	
		Number	Rate (PTMPY) [†]	Number	Rate (PTMPY) [†]
Age Group					
0 to 4	870,694	226,918	260.6	22,676	26.0
5 to 9	552,897	63,125	114.2	5,957	10.8
10 to 14	404,999	29,352	72.5	3,951	9.8
15 to 20	306,858	31,901	104.0	4,026	13.1
Race/Ethnicity					
White, Non-Hispanic		81,658	207.1	7,509	19.1
Black, Non-Hispanic	394,213	71,298	185.1	5,187	13.5
Hispanic	385,255	189,762	146.9	22,304	17.3
Other/Unknown	1,291,986	8,578	134.0	1,610	25.2
Service Delivery Type/Area					
FFS	488,550	109,681	224.5	14,001	28.7
PCCM	575,090	82,680	143.8	14,515	25.2
Managed Care	1,071,807	158,935	148.3	8,094	7.6
Bexar	140,110	23,196	165.6	1,060	7.6
Dallas	202,142	38,980	192.8	1,605	7.9
El Paso	86,348	6,278	72.7	794	9.2
Harris	344,444	44,599	129.5	2,334	6.8
Lubbock	26,955	5,461	202.6	264	9.8
Nueces	85,914	9,149	106.5	948	11.0
Tarrant	117,125	20,220	172.6	657	5.6
Travis	68,771	11,052	160.7	432	6.3
TOTAL	2,135,447	351,296	164.5	36,610	17.1

[†] PTMPY = Per Thousand Members (Clients) Per Year

Table 4.2b: Number and percent of clients with one or more hospitalization or emergency department visit having a primary diagnosis for ambulatory care sensitive conditions for clients age 20 years and under – Texas Medicaid, SFY 2007

Category	Number of Clients	One or More Emergency Dept. Visit		One or More Inpatient Hospital Stay	
		Number	%	Number	%
Age Group					
0 to 4	1,226,657	213,273	17.4	21,403	1.7
5 to 9	707,347	60,504	8.6	5,498	0.8
10 to 14	525,571	28,376	5.4	3,433	0.7
15 to 20	449,818	30,567	6.8	3,474	0.8
Race/Ethnicity					
White, Non-Hispanic	567,949	76,762	13.5	6,943	1.2
Black, Non-Hispanic	517,853	67,267	13.0	4,850	0.9
Hispanic	1,738,392	180,568	10.4	20,557	1.2
Other/Unknown	85,199	8,123	9.5	1,458	1.7
Service Delivery Type/Area					
FFS	571,850	103,522	18.1	13,218	2.3
PCCM	784,920	78,461	10.0	12,636	1.6
Managed Care	1,552,623	150,737	9.7	7,954	0.5
Bexar	196,249	21,920	11.2	1,043	0.5
Dallas	300,896	36,606	12.2	1,574	0.5
El Paso	118,077	6,063	5.1	779	0.7
Harris	501,342	42,727	8.5	2,297	0.5
Lubbock	38,593	5,024	13.0	255	0.7
Nueces	119,978	8,663	7.2	928	0.8
Tarrant	178,136	19,219	10.8	653	0.4
Travis	99,352	10,515	10.6	425	0.4
TOTAL	2,909,393	332,720	11.4	33,808	1.2

Condition-specific rates

The ED and inpatient visit rates for each of the specific ACSC were calculated and are displayed in Table 4.3. Four conditions are defined as an ACSC only for certain age ranges (congestive heart failure, ruptured appendix, and two conditions resulting in infant re-admissions – jaundice and volume depletion). For these four conditions, the denominator has been limited to only the months enrolled for clients within the corresponding age range (annualized for non-infants). Claims for infant jaundice and volume depletion were checked against the claims history to attempt to distinguish that these visits were a separate admission and not part of the original neonatal inpatient stay. If the from-date-of-service for the visit occurred before the date of the infant's neonatal discharge, the condition is not considered ambulatory care sensitive, and is not added to the numerator.

Table 4.3. Number and rate of hospitalizations and emergency department visits having a primary diagnosis for ambulatory care sensitive conditions among clients age 20 years and under – Texas Medicaid, SFY 2007

ACS Condition	Annualized Enrollment	Emergency Dept. Visits		Inpatient Hospital Stays	
		Number	Rate (PTMPY) [†]	Number	Rate (PTMPY) [†]
Acute bronchitis	2,135,447	1088	0.5	26	NR
Acute otitis media	2,135,447	75,535	35.4	439	0.2
Asthma	2,135,447	23,938	11.2	7,305	3.4
Cellulitis	2,135,447	29,954	14.0	6,180	2.9
Dehydration	2,135,447	6	NR	6	NR
Diabetes	2,135,447	1,070	0.5	1,254	0.6
Epilepsy	2,135,447	2,100	1.0	1,957	0.9
Gastroenteritis	2,135,447	26,096	12.2	3,635	1.7
Hypokalemia	2,135,447	175	0.1	101	< 0.1
Mastoiditis	2,135,447	90	<0.1	162	0.1
Nausea and vomiting	2,135,447	33,118	15.5	1,483	0.7
Pelvic inflammatory disease	2,135,447	646	0.3	214	0.1
Pneumonia	2,135,447	1,409	0.7	2,604	1.2
Pyelonephritis	2,135,447	1,989	0.9	1,751	0.8
Upper respiratory infection	2,135,447	133,673	62.6	1,522	0.7
Urinary tract infection	2,135,447	16,318	7.6	2,591	1.2
Vaccine Preventable Disease:					
Acute Poliomyelitis	2,135,447	2	NR	0	NR
Bacterial Meningitis	2,135,447	45	< 0.1	143	0.1
Chickenpox	2,135,447	980	0.5	51	< 0.1
Diphtheria	2,135,447	1	NR	1	NR
Measles	2,135,447	19	NR	0	NR
Mumps	2,135,447	36	< 0.1	4	NR
Rheumatic Fever	2,135,447	14	NR	14	NR
Tetanus	2,135,447	3	NR	0	NR
Viral Hepatitis	2,135,447	25	NR	46	< 0.1
Whooping Cough	2,135,447	89	<0.1	119	0.1
Viral meningitis	2,135,447	443	0.2	897	0.4
Viral syndrome	2,135,447	27	NR	18	NR
Volume depletion-infant readmission*	242,796	2	NR	8	NR
Jaundice-infant readmission*	242,796	1,908	7.9	3,111	12.8
Congestive heart failure**	209,712	19	NR	86	0.4
Ruptured appendix***	751,792	478	0.6	882	1.2

[†] PTMPY = Per Thousand Members (Clients) Per Year;

* Denominators for infant readmissions = Total number of infants enrolled in Medicaid during their first month of life (each client contributes only one month to the denominator)

** Denominator for congestive heart failure = (Sum of months enrolled in SFY 2007 for 15 to 20 year olds) ÷ 12

*** Denominator for ruptured appendix = (Sum of months enrolled in SFY 2007 for 6 to 14 year olds) ÷ 12

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Indicator 5: Follow-up Care for Newly Prescribed ADHD Medication

Definition: Percent of THSteps clients with newly prescribed attention-deficit/hyperactivity disorder (ADHD) who have at least one follow-up visit within 30 days of when the first ADHD medication was dispensed and at least 3 follow-up care visits within a 10-month period.

Study Population (Denominators)

The study population was identified using records from the Texas Medicaid Vendor Drug Program for clients ages 3 through 20 years during SFY 2007 (based on their age on December 31 of the measurement year). Medications used in the treatment of ADHD were selected using a comprehensive list from NCQA.⁹ For each client with a filled prescription of an ADHD medication in SFY 2007 (n=116,651), the earliest prescription filled date in which the client had no new or refill prescriptions for ADHD medications in the prior 120 day period was considered the Index Prescription Start Date (IPSD). Approximately half (n=61,507, 52.7%) of the clients who filled a prescription for ADHD medication in SFY 2007 had their IPSD within the 12 month study period.

Continuous enrollment during the entire intake and follow-up period for each study was required for inclusion into the study populations. Study 1 consists of clients who had continuous enrollment from 120 days prior to the IPSD, through 30 days following the IPSD. Study 2 included clients who had continuous enrollment from 120 days prior to the IPSD, through 300 days after (with one allowable gap of no more than one month between 31 days and 300 days after the IPSD).

Table 5.1 summarizes the total number of clients meeting each of these criteria for each age group, race/ethnicity group and service delivery type/area. Clients were assigned to the SDA category in which they were enrolled when the IPSD occurred and the age group based on their age on the date of the filled prescription.

⁹ "Follow-up Care for Children Prescribed ADHD Medication (ADD) – ADD Medications.xls" obtained from: <http://www.ncqa.org/tabid/598/Default.aspx>. Accessed June 2008.

Table 5.1: Number of clients, ages 3 through 20 years, with newly prescribed attention deficit/hyperactivity disorder (ADHD) medication - Texas Medicaid, SFY 2007

	Number of clients with index prescription in SFY 2007	Clients meeting continuous enrollment criteria for Study 1 [†]		Clients meeting continuous enrollment criteria for Study 2 [‡]	
		n	%	n	%
Age Group					
3 to 5	7,957	6,869	86.3	5,710	71.8
6 to 12	37,839	28,195	74.5	22,718	60.0
13 to 20	15,711	12,203	77.7	9,740	62.0
Race/Ethnicity					
White, non-Hispanic	19,689	13,009	66.1	9,578	48.6
Black, non-Hispanic	12,905	10,805	83.7	9,140	70.8
Hispanic	25,032	20,221	80.8	16,484	65.9
Other/Unknown	3,881	3,232	83.3	2,966	76.4
Service Delivery Type/Area					
FFS	17,520	13,400	76.5	11,976	68.4
PCCM	17,738	13,580	76.6	10,564	59.6
Managed Care	26,249	20,287	77.3	15,628	59.5
Bexar	3,965	3,045	76.8	2,270	57.3
Dallas	3,947	3,036	76.9	2,362	59.8
El Paso	1,845	1,555	84.3	1,221	66.2
Harris	7,572	6,013	79.4	4,770	63.0
Lubbock	696	544	78.2	409	58.8
Nueces	4,052	3,069	75.7	2,338	57.7
Tarrant	2,823	2,046	72.5	1,537	54.4
Travis	1,349	979	72.6	721	53.4
Total	61,507	47,267	76.8	38,168	62.1

[†] Continuously enrolled from 120 days prior to the index prescription, through 30 days following it.

[‡] Continuously enrolled from 120 days prior to the index prescription, through 300 days following it.

Definition for Follow-up Visit:

Administrative claims and HMO encounters data were used to identify follow-up visits. The presence of specific procedure and revenue codes for psychotherapy or evaluation and management of established patients indicated whether the client received follow-up care during an outpatient visit. The follow-up visits were further categorized according to diagnosis. Visits which specifically listed ADHD (ICD-9-CM code= 314.xx) as a primary or secondary diagnosis were distinguished from visits that did not list an ADHD diagnosis, but did have at least one mental health disorder listed (ICD-9-CM codes= 290.xx through 313.xx) or did not list any mental health disorder.

Study 1: Initiation Phase - The initiation phase refers to the period beginning at the IPSP and lasting through the first 30 days following the IPSP. The proportion of clients who received at least one follow-up visit during the initiation phase is displayed in Table 5.2.

Table 5.2: Number and percent of clients, age 3 through 20 years, who had at least one follow-up visit within 30 days following the first ADHD medication dispensing - Texas Medicaid, SFY 2007

	Study Population	Clients with at least 1 follow-up visit within 30 days	
		n	%
Age Group			
3 to 5	6,869	3,252	47.3
6 to 12	28,195	9,494	33.7
13 to 20	12,203	3,769	30.9
Race/Ethnicity			
White, non-Hispanic	13,009	4,325	33.2
Black, non-Hispanic	10,805	3,042	28.2
Hispanic	20,221	8,220	40.7
Other/Unknown	3,232	928	28.7
Service Delivery Type/Area			
FFS	13,400	4,072	30.4
PCCM	13,580	4,897	36.1
Managed Care	20,287	7,546	37.2
Bexar	3,045	1,365	44.8
Dallas	3,036	609	20.1
El Paso	1,555	778	50.0
Harris	6,013	2,295	38.2
Lubbock	544	196	36.0
Nueces	3,069	1,174	38.3
Tarrant	2,046	764	37.3
Travis	979	365	37.3
Total	47,267	16,515	34.9

Table 5.3: Distribution of primary diagnosis codes for follow-up visits that occurred within 30 days following the first ADHD medication dispensing among clients ages 3 through 20 years – Texas Medicaid, SFY 2007

	Diagnosis codes at follow-up visit					
	ADHD (ICD9=314)		Mental Disorder (ICD9 = 290 - 313)		Other Diagnosis Category	
	n	%	n	%	n	%
Age Group						
3 to 5	1,852	57.0	275	8.5	1,125	34.6
6 to 12	5,009	52.8	940	9.9	3,545	37.3
13 to 20	1,322	35.1	720	19.1	1,727	45.8
Race/Ethnicity						
White, non-Hispanic	2,190	50.6	536	12.4	1,599	37.0
Black, non-Hispanic	1,621	53.3	407	13.4	1,014	33.3
Hispanic	3,981	48.4	860	10.5	3,379	41.1
Other/Unknown	391	42.1	132	14.2	405	43.6
Service Delivery Type/Area						
FFS	1,550	38.1	537	13.2	1,985	48.8
PCCM	2,349	48.0	379	7.7	2,169	44.3
Managed Care	4,284	56.8	1,019	13.5	2,243	29.7
Bexar	880	64.5	171	12.5	314	23.0
Dallas	214	35.1	22	NR	373	61.3
El Paso	495	63.6	113	14.5	170	21.9
Harris	1,350	58.8	358	15.6	587	25.6
Lubbock	114	58.2	24	NR	58	29.6
Nueces	636	54.2	132	11.2	406	34.6
Tarrant	422	55.2	120	15.7	222	29.1
Travis	173	47.4	79	21.6	113	31.0
Total	8,183	49.5	1,935	11.7	6,397	38.7

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Study 2: Continuation and Maintenance Phase - The continuation and maintenance phase refers to the period extending from the end of the initiation phase (31 days following the IPSD) to approximately ten months (300 days) following the IPSD. The proportion of clients who received at least three follow-up visits during the continuation and maintenance phase and the total number of visits that occurred is displayed in Table 5.4.

Table 5.4: Number and percent of clients, ages 3 through 20 years, who had at least one follow-up visit between 31 and 300 days following the first ADHD medication dispensing - Texas Medicaid, SFY 2007

	Study Population	Clients with at least 3 follow-up visits between 31 and 300 days		Total number of visits
		n	%	
Age Group				
3 to 5	5,710	3,510	61.5	26,213
6 to 12	22,718	10,369	45.6	67,660
13 to 20	9,740	3,972	40.8	25,930
Race/Ethnicity				
White, non-Hispanic	9,578	4,291	44.8	27,825
Black, non-Hispanic	9,140	3,273	35.8	20,908
Hispanic	16,484	9,085	55.1	62,903
Other/Unknown	2,966	1,202	40.5	8,167
Service Delivery Type/Area				
FFS	11,976	5,205	43.5	33,191
PCCM	10,564	5,658	53.6	37,460
Managed Care	15,628	6,988	44.7	49,152
Bexar	2,270	1,205	53.1	8,479
Dallas	2,362	561	23.8	2,597
El Paso	1,221	704	57.7	5,553
Harris	4,770	2,179	45.7	15,930
Lubbock	409	171	41.8	1,178
Nueces	2,338	1,180	50.5	7,928
Tarrant	1,537	666	43.3	5,262
Travis	721	322	44.7	2,225
Total	38,168	17,851	46.8	119,803

Table 5.5: Distribution of primary diagnosis codes for follow-up visits that occurred between 31 and 300 days following the first ADHD medication dispensing among clients ages 3 through 20 years - Texas Medicaid, SFY 2007

	Total number of visits	Diagnosis codes of follow-up visit					
		ADHD (ICD9 = 314)		Mental Disorder (ICD9 = 290 - 313)		Other Diagnosis Category	
		n	%	n	%	n	%
Age Group							
3 to 5	26,213	11,213	42.8	2,586	9.9	12,414	47.4
6 to 12	67,660	31,191	46.1	8,827	13.0	27,642	40.9
13 to 20	25,930	8,027	31.0	5,810	22.4	12,093	46.6
Race/Ethnicity							
White, non-Hispanic	27,825	11,606	41.7	4,824	17.3	11,395	41.0
Black, non-Hispanic	20,908	11,073	53.0	3,306	15.8	6,529	31.2
Hispanic	62,903	24,324	38.7	7,676	12.2	30,903	49.1
Other/Unknown	8,167	3,428	42.0	1,417	17.4	3,322	40.7
Service Delivery Area							
FFS	33,191	11,404	34.4	5,396	16.3	16,391	49.4
PCCM	37,460	14,105	37.7	3,329	8.9	20,026	53.5
Managed Care	49,152	24,922	50.7	8,498	17.3	15,732	32.0
Bexar	8,479	4,569	53.9	1,353	16.0	2,557	30.2
Dallas	2,597	709	27.3	90	3.5	1,798	69.2
El Paso	5,553	2,995	53.9	963	17.3	1,595	28.7
Harris	15,930	8,547	53.7	3,232	20.3	4,151	26.1
Lubbock	1,178	656	55.7	169	14.3	353	30.0
Nueces	7,928	3,660	46.2	1,055	13.3	3,213	40.5
Tarrant	5,262	2,748	52.2	1,158	22.0	1,356	25.8
Travis	2,225	1,038	46.7	478	21.5	709	31.9
Total	119,803	50,431	42.1	17,223	14.4	52,149	43.5

Indicator 6: Follow-up after Hospitalization for Mental Illness

Definition: Percentage of THSteps clients hospitalized for a mental health disorder who receive follow-up care in an ambulatory setting within seven and within 30 days from the date of discharge from the hospital.

Study Population (Denominators)

Eligible population: The eligible population for this measure is based on discharges not clients. Administrative claims, HMO encounters, and NorthSTAR data were used to identify and select routine discharges from inpatient facilities. Discharges were included if care for a mental health condition was received by clients age 6 through 20 years, during SFY 2007 (based on their age on December 31 of the measurement year). The discharge was excluded if the client did not remain in Medicaid throughout the follow-up period or was readmitted for inpatient care during the follow-up period.

Definition for a follow-up visit:

Administrative claims, HMO encounters, and NorthSTAR data were used to examine the care received in the days following the inpatient discharge. The presence of specific procedure and revenue codes for psychotherapy or evaluation and management of established patients indicated whether the client received follow-up care during an outpatient visit, intensive outpatient encounter or partial hospitalization. Two calculations were performed:

1. The percentage of patients who received follow-up care within 30 days of discharge, and
2. The percentage of patients who received follow-up care within 7 days.

Clients who were not enrolled in Medicaid for the length of the period of study for a calculation (7 or 30 days) were not included in that calculation. Approximately 90% of the discharges that qualified for inclusion in the within 7-day calculation also qualified for the within 30-day calculation. Follow-up visits that occurred within 7 days of the discharge were included in both calculations (i.e. follow-up visits in the numerator of the within 7-day calculation are a subset of those in the numerator of the within 30-day calculation).

The follow-up visits were further categorized according to whether or not the primary diagnosis was mental-health related.

Table 6.1: Number and percent of hospitalizations for a mental health disorder in which follow-up care was received in an ambulatory setting within 7 days - Texas Medicaid, SFY 2007

	# of Index Discharges	Follow-up care received within 7 days n	%
Race/Ethnicity			
White, non-Hispanic	4,288	881	20.5
Black, non-Hispanic	2,247	483	21.5
Hispanic	4,278	990	23.1
Other/Unknown	591	124	21.0
Service Delivery Type/Area			
FFS	6,198	1,227	19.8
PCCM	2,985	625	20.9
Managed Care	2,221	626	28.2
Bexar	373	114	30.6
Dallas	488	128	26.2
El Paso	78	24	NR
Harris	694	214	30.8
Lubbock	15	5	NR
Nueces	200	63	31.5
Tarrant	284	51	18.0
Travis	89	27	NR
TOTAL	11,404	2,478	21.7

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 6.2: Number and percent of follow-up visits occurring within 7 days, by presence of a mental health condition (ICD-9-CM: 290.xx – 314.xx) as the primary diagnosis - Texas Medicaid, SFY 2007

	# of Follow-up Visits	Mental Health Diagnosis		Other Diagnosis	
		n	%	n	%
Race/Ethnicity					
White, non-Hispanic	881	683	77.5	198	22.5
Black, non-Hispanic	483	390	80.7	93	19.3
Hispanic	990	728	73.5	262	26.5
Other/Unknown	124	105	84.7	19	NR
Service Delivery Type/Area					
FFS	1,227	928	75.6	299	24.4
PCCM	625	452	72.3	173	27.7
Managed Care	626	526	84.0	100	16.0
Bexar	114	98	86.0	16	NR
Dallas	128	111	86.7	17	NR
El Paso	24	17	NR	7	NR
Harris	214	179	83.6	35	16.4
Lubbock	5	3	NR	2	NR
Nueces	63	52	82.5	11	NR
Tarrant	51	45	88.2	6	NR
Travis	27	21	NR	6	NR
TOTAL	2,478	1,906	76.9	572	23.1

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 6.3: Number and percent of hospitalizations for a mental health disorder in which follow-up care was received in an ambulatory setting within 30 days - Texas Medicaid, SFY 2007

	# of Index Discharges	Follow-up care received within 30 days n	%
Race/Ethnicity			
White, non-Hispanic	3,877	2,085	53.8
Black, non-Hispanic	2,062	1,062	51.5
Hispanic	3,896	2,203	56.5
Other/Unknown	521	290	55.7
Service Delivery Type/Area			
FFS	5,571	2,985	53.6
PCCM	2,701	1,495	55.3
Managed Care	2,084	1,160	55.7
Bexar	333	199	59.8
Dallas	439	229	52.2
El Paso	76	48	63.2
Harris	660	365	55.3
Lubbock	14	6	NR
Nueces	211	125	59.2
Tarrant	265	139	52.5
Travis	86	49	57.0
TOTAL	10,356	5,640	54.5

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Table 6.4: Number and percent of follow-up visits occurring within 30 days, by presence of a mental health condition (ICD-9-CM: 290.xx – 314.xx) as the primary diagnosis - Texas Medicaid, SFY 2007

	# of Follow-up Visits	Mental Health Diagnosis		Other Diagnosis	
		n	%	n	%
Race/Ethnicity					
White, non-Hispanic	2,085	1,770	84.9	315	15.1
Black, non-Hispanic	1,062	911	85.8	151	14.2
Hispanic	2,203	1,889	85.7	314	14.3
Other/Unknown	290	262	90.3	28	NR
Service Delivery Type/Area					
FFS	2,985	2,577	86.3	408	13.7
PCCM	1,495	1,250	83.6	245	16.4
Managed Care	1,160	1,005	86.6	155	13.4
Bexar	199	175	87.9	24	NR
Dallas	229	202	88.2	27	NR
El Paso	48	44	91.7	4	NR
Harris	365	309	84.7	56	15.3
Lubbock	6	4	NR	2	NR
Nueces	125	115	92.0	10	NR
Tarrant	139	116	83.5	23	NR
Travis	49	40	81.6	9	NR
TOTAL	5,640	4,832	85.7	808	14.3

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Indicator 7: Hospital Readmission Rates

Definition: The percentage of THSteps clients hospitalized during the study period who receive a routine hospital discharge and are readmitted to a hospital within 30 days of discharge.

Study Population (Denominators)

Eligible population: The eligible population for this measure is based on discharges, not clients. Discharges in the denominators were identified using administrative claims and HMO encounters data for hospitalizations during SFY 2007 among Texas Medicaid clients who were 20 years of age and younger (based on their age on December 31 of the measurement year). Some records (n=170; 0.02%) were excluded from the analysis because the discharge date listed on the claim or encounter was missing or illogical.

Definition for readmission

Readmissions refer to hospital visits in which the client has returned to the hospital within approximately one month of an “index visit.” For neonates, the index visit is defined as a routine discharge from the birth hospital following the live birth of a full term infant. For non-neonates, the index visit was defined as a routine hospital discharge. Some non-neonatal visits may count as both a readmission and as an index visit for a following readmission. These “serial” readmissions are not treated differently in the analysis.

In addition to demographic characteristics such as race/ethnicity and service delivery area, readmission rates were stratified by:

- 1) The number of days in-between the discharge date of the index visit and the admission date for the readmission,
- 2) The length of stay (LOS) for the index visit, and
- 3) Diagnosis code category of the index visit (non-neonatal visits only).

Study 1 – Neonatal readmission rates

Approximately 10% of the newborn discharges were excluded from the analysis because the claim or encounter record indicated that the infant was born prematurely.¹⁰ The number of routine hospital discharges following the live birth of a full-term infant was 185,838. The total number of infants readmitted following their initial inpatient discharge was 5,145. The distribution of the neonatal readmissions, by race/ethnicity, service delivery type/area and the length of their original inpatient stay is displayed in Table 7.1.

¹⁰ ICD-9-CM code = 644.xx or 765.xx; DRG code = 386, 687, 388

Table 7.1: Number and Percent of full term neonates readmitted to the hospital within 7 days, 8 to 14 days and 15 to 28 days - Texas Medicaid, SFY 2007

	# of Index Discharges	Number and Percent of Readmissions					
		Within 7 days		8 to 14 days		15 to 28 days	
		n	%	n	%	n	%
Length of Stay for index visit							
1 day	41,804	485	1.16	257	.61	512	1.22
2 days	100,172	914	.91	577	.58	1,254	1.25
3 days	27,769	212	.76	147	.53	330	1.19
>3 days	16,093	103	.64	115	.71	239	1.49
Race/Ethnicity							
White, non-Hispanic	38,408	393	1.02	200	.52	427	1.11
Black, non-Hispanic	22,532	112	.50	106	.47	233	1.03
Hispanic	119,648	1,146	.96	762	.64	1,622	1.36
Other/Unknown	5,250	63	1.20	28	NR	53	1.01
Service Delivery Type/Area							
FFS	71,991	679	.94	477	.66	936	1.30
PCCM	50,120	574	1.15	296	.59	682	1.36
Managed Care	63,727	461	.72	323	.51	717	1.13
Bexar	10,397	88	.85	83	.80	151	1.45
Dallas	11,087	73	.66	41	.37	123	1.11
El Paso	4,145	45	1.09	12	NR	39	.94
Harris	18,277	132	.72	108	.59	195	1.07
Lubbock	2,525	17	NR	16	.63	47	1.86
Nueces	4,964	30	.60	15	NR	39	.79
Tarrant	8,080	46	.57	27	NR	77	.95
Travis	4,252	30	.71	21	NR	46	1.08
TOTAL	185,838	1,714	.92	1,096	.59	2,335	1.26

NR = Not Reported; Rates based on small numbers of events can fluctuate widely for reasons other than true change in the underlying frequency of occurrence of the event.

Study 2 – Non-neonatal readmission rates

The number of hospital discharges for non-neonates was 199,219. The total number of readmissions was 14,665. The distribution of these readmissions, by race/ethnicity, SDA, the length of stay for the index visit and diagnosis category is displayed in Table 7.2.

Table 7.2: Number and Percent of non-neonatal routine discharges (among Medicaid clients aged 31 days through 20 years) resulting in a readmission to the hospital within 7 days, and 8 to 30 days - Texas Medicaid, SFY 2007

	# of Index Discharges	Number and Percent of Readmissions					
		Within 7 days		8 to 30 days		Total	
		n	%	n	%	n	%
Length of Stay for index visit							
1 to 3 days	141,414	2,336	1.65	5,685	4.02	8,021	5.67
4 to 6 days	32,882	969	2.95	2,163	6.58	3,132	9.52
7 to 10 days	10,539	445	4.22	1,047	9.93	1,492	14.16
>10 days	14,384	686	4.77	1,334	9.27	2,020	14.04
Race/Ethnicity							
White, non-Hispanic	45,966	1,084	2.36	2,480	5.40	3,564	7.75
Black, non-Hispanic	30,578	694	2.27	1,635	5.35	2,329	7.62
Hispanic	116,878	2,394	2.05	5,472	4.68	7,866	6.73
Other/Unknown	5,797	264	4.55	642	11.07	906	15.63
Service Delivery Area/Type							
FFS	63,625	1,891	2.97	4,040	6.35	5,931	9.32
PCCM	64,572	1,383	2.14	3,339	5.17	4,722	7.31
Managed Care	71,022	1,162	1.64	2,850	4.01	4,012	5.65
Bexar	10,475	192	1.83	536	5.12	728	6.95
Dallas	11,893	197	1.66	460	3.87	657	5.52
El Paso	5,894	79	1.34	168	2.85	247	4.19
Harris	21,318	384	1.80	876	4.11	1,260	5.91
Lubbock	2,585	46	1.78	129	4.99	175	6.77
Nueces	5,884	36	.61	140	2.38	176	2.99
Tarrant	8,633	135	1.56	322	3.73	457	5.29
Travis	4,340	93	2.14	219	5.05	312	7.19
Diagnosis Category							
Infectious And Parasitic Diseases	6,120	125	2.04	258	4.22	383	6.26
Neoplasms	1,248	168	13.46	304	24.36	472	37.82
Endocrine, Nutritional And Metabolic Diseases, And Immunity Disorders	5,917	148	2.50	347	5.86	495	8.37

(Table 7.2 Continued)

Diseases Of Blood And Blood-Forming Organs	3,025	228	7.54	489	16.17	717	23.70
Mental Disorders	16,140	646	4.00	1,455	9.01	2,101	13.02
Diseases Of The Nervous System And Sense Organs	3,420	99	2.89	186	5.44	285	8.33
Diseases Of The Circulatory System	1,108	57	5.14	102	9.21	159	14.35
Diseases Of The Respiratory System	32,323	414	1.28	1,312	4.06	1,726	5.34
Diseases Of The Digestive System	10,405	269	2.59	454	4.36	723	6.95
Diseases Of The Genitourinary System	5,220	84	1.61	216	4.14	300	5.75
Complications Of Pregnancy, Childbirth, And The Puerperium	74,993	1,022	1.36	2,014	2.69	3,036	4.05
Diseases Of The Skin And Subcutaneous Tissue	5,377	49	.91	100	1.86	149	2.77
Diseases Of The Musculoskeletal System And Connective Tissue	1,467	37	2.52	77	5.25	114	7.77
Congenital Anomalies	3,298	110	3.34	213	6.46	323	9.79
Certain Conditions Originating In The Perinatal Period	1,244	57	4.58	227	18.25	284	22.83
Symptoms, Signs, And Ill-Defined Conditions	6,718	159	2.37	362	5.39	521	7.76
Injury And Poisoning	7,892	193	2.45	367	4.65	560	7.10
Supplementary Classification Of Factors Influencing Health Status And Contact With Health Services (V-Codes)	13,304	571	4.29	1,746	13.12	2,317	17.42
TOTAL	199,219	4,436	2.23	10,229	5.13	14,665	7.36

Table 7.3 compares the primary diagnosis code for the readmission with that of the index visit. The 14,665 readmissions were distributed among four mutually exclusive categories: 1) the readmission was for the same diagnosis as the index visit, 2) the readmission was for an infection, 3) the readmission was for a different diagnosis within the same diagnosis category (as listed in Table 7.2), and 4) the readmission was for an unrelated diagnosis.

Table 7.3: Comparison between the index visit primary diagnosis and the readmission primary diagnosis – Texas Medicaid, SFY 2007

	Number and Percent of Readmissions					
	Within 7 days		8 to 30 days		Total	
	n	%	n	%	n	%
Same diagnosis as index	963	21.7	2,314	22.6	3,277	22.3
Infection	134	3.0	273	2.7	407	2.8
Similar diagnosis as index	1,618	36.5	3,265	31.9	4,883	33.3
Other diagnosis	1,721	38.8	4,377	42.8	6,098	41.6
TOTAL	4,436		10,229		14,665	

Notice:

According to the definition in the technical specifications for this measure (as agreed upon between Plaintiffs and Defendants), hospital readmissions are to be measured as a percentage. The technical specifications further define this percentage such that the denominator is the “number of routine discharges” while the numerator is the number of “clients who were readmitted.” Clients with multiple inpatient visits can contribute more than one discharge to the denominator but are counted only once in the numerator, even if they have had more than one hospital readmission. The unit of analysis, using the technical specifications, becomes a ratio that underestimates the readmission rate. (The estimate would be interpreted as the ratio of all routine discharges to clients with one or more readmissions during the study period). Study 1 is not similarly affected because of the distinct nature of the initial inpatient discharge following a full-term live birth.

Defendants have submitted percent calculations in Table 7.2 - Readmissions per 100 routine discharges - because it is a more appropriate method of quantifying hospital readmissions and may be more easily interpreted and compared with national rates. However, in accordance with the agreement, Defendants have also calculated the “percentage” as defined by the technical specifications, and reported it in Table 7.4.

Denominator= Routine discharge THSteps clients (same as before)

Numerator = Clients who have been readmitted (distinct count, client contributes only once, no matter how many hospitalizations and readmissions they have had). The length of stay and diagnosis category for the index visit and the number of days between the index visit and subsequent visit are based on the first discharge-readmission pair found for the client, even if subsequent readmissions would have been categorized differently.

Table 7.4: Number and percent of non-neonate routine discharges (among Medicaid clients aged 31 days through 20 years) in which the client had a readmission to the hospital - Texas Medicaid, SFY 2007

	# of Index Discharges	Number and Percent of Clients Readmitted					
		Within 7 days		8 to 30 days		Total	
		n	%	n	%	n	%
Length of Stay for index visit							
1 to 3 days	141,414	1,357	1.0	2,679	1.9	4,036	2.9
4 to 6 days	32,882	537	1.6	1,184	3.6	1,721	5.2
7 to 10 days	10,539	272	2.6	628	6.0	900	8.5
>10 days	14,384	392	2.7	813	5.7	1,205	8.4
Race/Ethnicity							
White, non-Hispanic	45,966	698	1.5	1,420	3.1	2,118	4.6
Black, non-Hispanic	30,578	405	1.3	858	2.8	1,263	4.1
Hispanic	116,878	1,328	1.1	2,748	2.4	4,076	3.5
Other/Unknown	5,797	127	2.2	278	4.8	405	7.0
Service Delivery Type/Area							
FFS	63,625	1,049	1.6	2,046	3.2	3,095	4.9
PCCM	64,572	808	1.3	1,810	2.8	2,618	4.1
Managed Care	71,022	701	1.0	1,448	2.0	2,149	3.0
Bexar	10,475	112	1.1	269	2.6	381	3.6
Dallas	11,893	133	1.1	225	1.9	358	3.0
El Paso	5,894	46	0.8	85	1.4	131	2.2
Harris	21,318	227	1.1	427	2.0	654	3.1
Lubbock	2,585	29	1.1	75	2.9	104	4.0
Nueces	5,884	20	0.3	78	1.3	98	1.7
Tarrant	8,633	86	1.0	164	1.9	250	2.9
Travis	4,340	48	1.1	125	2.9	173	4.0
Diagnosis Category							
Infectious And Parasitic Diseases	6,120	48	0.8	131	2.1	179	2.9
Neoplasms	1,248	89	7.1	174	13.9	263	21.1
Endocrine, Nutritional And Metabolic Diseases, And Immunity Disorders	5,917	61	1.0	146	2.5	207	3.5

(Table 7.4 Continued)

Diseases Of Blood And Blood-Forming Organs	3,025	87	2.9	174	5.8	261	8.6
Mental Disorders	16,140	423	2.6	991	6.1	1,414	8.8
Diseases Of The Nervous System And Sense Organs	3,420	57	1.7	124	3.6	181	5.3
Diseases Of The Circulatory System	1,108	35	3.2	58	5.2	93	8.4
Diseases Of The Respiratory System	32,323	246	0.8	691	2.1	937	2.9
Diseases Of The Digestive System	10,405	162	1.6	236	2.3	398	3.8
Diseases Of The Genitourinary System	5,220	52	1.0	111	2.1	163	3.1
Complications Of Pregnancy, Childbirth, And The Puerperium	74,993	789	1.1	1,461	1.9	2,250	3.0
Diseases Of The Skin And Subcutaneous Tissue	5,377	40	0.7	59	1.1	99	1.8
Diseases Of The Musculoskeletal System And Connective Tissue	1,467	25	1.7	44	3.0	69	4.7
Congenital Anomalies	3,298	68	2.1	96	2.9	164	5.0
Certain Conditions Originating In The Perinatal Period	1,244	15	1.2	41	3.3	56	4.5
Symptoms, Signs, And Ill-Defined Conditions	6,718	80	1.2	149	2.2	229	3.4
Injury And Poisoning	7,892	111	1.4	187	2.4	298	3.8
Supplementary Classification Of Factors Influencing Health Status And Contact With Health Services (V-Codes)	13,304	170	1.3	431	3.2	601	4.5
TOTAL	199,219	2,558	1.3	5,304	2.7	7,862	3.9

Appendix 1 - Abbreviations:

ACSC	Ambulatory Care Sensitive Condition
ADHD	Attention deficit/hyperactivity disorder
AHA/DSHS/THA Survey	American Hospital Association/Texas Department of State Health Services/Texas Hospital Association <i>Cooperative Annual Survey of Hospitals</i>
C.E.	Continuous Enrollment
CLPPP	Childhood Lead Poisoning Prevention Program
CY	Calendar Year, January 1 – December 31
EBLL	Elevated Blood Lead Level
ED	Emergency Department
EPSDT	Early Periodic Screening, Diagnosis, and Treatment
FFS	Fee for Service
HEDIS	Healthcare Effectiveness Data Information Set
HMO	Health Maintenance Organization
HHSC	(Texas) Health and Human Services Commission
ICD-9-CM, or ICD9	International Classification of Diseases, 9th Revision, Clinical Modification
IPSD	Index Prescription Start Date
LOS	Length of Stay of inpatient hospital visit (calculated by subtracting the admission date from the discharge date)
MCO	Managed Care Organization
NCQA	National Committee for Quality Assurance
PCCM	Primary Care Case Management
PCP	Primary Care Provider
PNC	Prenatal Care
PPS	Premiums Payable System
PTMPY	Per Thousand Members Per Year (a unit for rate calculations)
SAB	Short-acting β -agonist (asthma medication)
SAVERR	System of Application, Verification, Eligibility, Referral, and Reporting
SDA	Service Delivery Area
SFY	State Fiscal Year, September 1 – August 31
THSteps	Texas Health Steps
TIERS	Texas Integrated Eligibility Redesign System
TMHP	Texas Medicaid & Healthcare Partnership
VLBW	Very Low Birth Weight (birth weight less than 1,500 grams)
VSU	(Texas) Vital Statistics Unit, Department of State Health Services

Appendix 2 – Ambulatory Care Sensitive Conditions and ICD-9-CM codes:

ACS Condition	ICD-9-CM Code(s)	Comments
Acute bronchitis	460.0	
Acute otitis media	382	
Asthma	493	
Cellulitis	681,682,683,686	
Congestive heart failure	428, 402.01, 402.11, 402.91, 518.4	15 to 20 year olds only
Dehydration	276.5	
Diabetes	250	
Epilepsy	345	
Gastroenteritis	558	
Hypokalemia	276.8	
Immunizable conditions	033 Whooping Cough 037 Tetanus 045 Acute Poliomyelitis 320.0 Bacterial Meningitis 390, 391 Rheumatic Fever 032 Diphtheria 052 Chickenpox 055 Measles 070 Viral Hepatitis 072 Mumps	
Jaundice - infant readmission	773.1, 774.2, 774.3, 774.6, 774.7	Readmission = any admit date occurring ≤ 28 days following date of birth
Mastoiditis	383	
Nausea and vomiting	787.0, 787.01, 787.02, 787.03	
Pelvic inflammatory disease	614	
Pneumonia	480, 482, 483, 484, 495	
Pyelonephritis	590	
Ruptured appendix	540.0, 540.1	6 to 14 year olds only
Upper respiratory infection	382, 462, 463, 465, 472.1	
Urinary tract infection	599.0	
Viral meningitis	047.8, 047.9	
Viral syndrome	079.0	
Volume depletion - infant readmission	276.0	Readmission = any admit date occurring ≤ 28 days following date of birth